THE WESTERN FARMER,

DEVOTED TO AGRICULTURE, HORTICULTURE, AND RURAL ECONOMY.

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For the Western Farmer.

Grafting Grape Vines.—Easy and sure way to Cultivate Grapes for Family use; also, making a good Bower at the same time.

Go to the woods or hedges and select the most thrifty grape vine, cut it off near the ground, say six inches, take up the root with care to save all, and hurt not even the smallest fibre. Remember it is roots that make branches; set it out six or eight inches deep, spread the roots as they grew, press the dirt down well. Graft it near the ground so as to close it up with earth all around, leaving one or two buds of the graft out; in doing this, be careful you do not move the graft. In so doing, I have had the graft to grow six to nine feet the first season. the second season to produce grapes, the third season I have gathered more grapes than I had from vines that were purchased and set out six years since (two years old when I got them;) besides, I have a much better stock, natural to the soil and climate. The best time is in the spring, before the sap begins to pass up (in common seasons the first of March,) that must be noticed as to time; the seasons are changeable, and much earlier some years than others. P. B.

Covington, Ky.

To the Editor of the Western Farmer.

Italian Spring Wheat.

Dear Sir: At the request of one of your agents, who called on me a few days ago, I shall proceed to tell you how I cultivate the Italian spring wheat on my prairie farm. If you think it will be of any benefit to any of my brother farmers, you can publish it for their encouragement; if you think otherwise you can cast it among the rubbish. I would here say, that my farm is ditched so as to carry off the surface water, which I consider absolutely necessary to insure a crop of any kind of grain.

I plough my land in the fall, (designed for the spring crop of wheat) lay it in narrow ridges, say about a rod wide, leave the furrows clear for the water to pass off between the ridges, as early in the spring as the soil will do to work, drag it over well, then put on my seed, one and a half bushels to the acre, work it in thoroughly with my cultivator, then pass over it with a fine-tooth seed harrow so as to leave the soil fine and mellow. I then roll it thoroughly, which last process I consider indispensable to getting a good crop. Last season (which, by the way, is the first I have had the Italian wheat to sow to any considerable extent,) I got thirty bushels to an acre, through my field; this was done without manure. I have raised the common kind of spring wheat for some years, managing in the same way, and have never got less than twenty bushels per acre, many times considerable more. I will mention, that last season I sowed one field partly with Italian, and partly with the common spring wheat, side by side, sowed the same day, and every way cultivated alike; the common kind was struck with rust, and much shrunk, and the Italian was bright and plump, and further, that the grasshoppers eat off nearly or quite half the heads of the common, while the Italian was left untouched. Perhaps some of your readers can account for this; I cannot, but such are the facts.

Yours respectfully,

RANAR KNOX.

Lyme, Huron Co. Feb. 12th 1840.

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While I am writing I thought it might be well to mention an experiment I have tried the two past years, to prevent the murrain among my cattle, as my attention is mostly turned to stock. I have been in this country three seasons; the first season I lost two head of cattle by that disease, which led me to try some experiments; the two last years I have lost none—my cattle run on the open prairie, are brought home and yarded at night; I keep troughs in my yard with salt and soot constantly standing, so

that they can get it when they please and as much as they please, (about one third soot.) When I cannot get soot enough I use air slacked lime, or common wood ashes. I think the experiment worth trying, as I consider preventive better than cure, and it has thus far exceeded my expectations. Make such use of the above as you please.

RANAR KNOX.

P. S.—As I am raising the improved breeds of hogs, viz. Berkshire, China, and Tuskarora, you may possibly hear from me upon that subject.

R. KNOX.

Judge Buel's Address, to the Agricultural Institute of New-London and Windham Counties.

[Concluded.]

The rivers, the salt marshes, and the sea are prolific in the materials of fertility. Their vegetables, their mud, and their fish, are all convertible into the food of farm crops.

From the materials already enumerated, great fertility has been imparted to farms which had been worn out by bad husbandry. On mentioning to a visitor from South Carolina, Mr. Crowell, the other day, that I had visited a farm upon Staten Island, Mr. Seeley's, where the proprietor, besides manuring well his crops of the season, had accumulated a surplus of two thousand five hundred loads of excellent compost, from the cattle yards, the swamps, and the sea, within his jurisdiction, my visitor remarked, that he had almost equalled that himself, for he had actually applied to his plantation, during the year, twenty thousand loads of like compost, with the addition of such materials as the cotton crops afforded. Mr. Crowell is a large planter. He cultivated, this year, two hundred acres of sea-island cotton. When he first turned his attention to manures, twelve years ago, he became, he told me, rather the butt of ridicule to his neighbors, than the subject of commendation. His continuing the practice, and his increased outlay upon it, is a sufficient evidence that he finds it profitable; while his neighbors are now giving their approval, by adopting his practice.

There are still other sources of fertility within the farmer's reach, which he may employ to profit. In a late jaunt in New Jersey, I was surprised to find farms and districts, where I had been led to expect, from report, a poor sandy soil, a bad system of husbandry, and a depressed farming population—I was agreeably surprised to find, I say, instead of these indications of poverty and want, a sandy soil, to be sure, and naturally poor, but much of it made rich and productive—highly cultivated farms, and an intelligent, prosperous population. This fertility had been in a manner created by the enterprise of the inhabitants, in applying to their soil, often at the expense of twenty dollars or more an acre, the lime of Pennsylvania, the dung and street dirt of New-York and Philadelphia, the marl of their own state, and the animal and vegetable products of their own waters. Some of these materials, although not affording direct sustenance to plants, operate mechanically or chemically to the improvement of the soil, and tend essentially to increase its productive powers.

Another means of recovering the fertilizing materials of the soil, is deep or subsoil ploughing. Much vegetable matter has been carried down from the soil into the subsoil, by the operations of water. By breaking up the latter, we not only deepen the tilth, the pasture of plants, but by exposing it to atmospheric influence, we render the vegetable matter in it soluable, and adapted to the wants of the crop. We thus restore to the upper surface much of the fertilizing matter which has been rendered useless by filtration.

Another means of restoring fertility to worn out soils, or of preserving or economizing it on unexhausted lands is by the culture of root crops, and other green crops as food for cattle, and for crops. This class of plants yield more food for both, than any other class; and they exhaust the soil less than any other class—for they are seldom permitted to mature their seeds, when the greatest requisitions are made upon its riches, and draw much nour-

ishment from the atmosphere, which is always charged with the gaseous food of plants, as well by their leaves as their roots, the soil being kept permeable to the atmosphere, by the culture they receive. As cattle food, root crops, particularly the Swedish turnip, the beet and carrot, quadruple the amount that is given by grain or grass; they break and pulverize the soil by their tap roots, they clean it by their culture, and they return to it most in the form of manure. Clover and other green crops, buried in the soil by the plough, are a cheap means of increasing fertility, which every farmer has at command. A bushel of clover seed will suffice for six acres, sown with small grain. The next or second autumn, it will give to the soil, if ploughed in, at least five tons to the acre, in tops and roots of vegetable matters, which are soon rendered soluble, and fitted to become a part of a new vegetable structure. The farmer, therefore, gets thirty tons of green succulent matter in return for his bushel of clover seed, besides the benefit to the soil of pulverization by means of the tap roots of the crop.

This brings to my mind an old practice, which has in a measure been exploded, as involving a waste of labor and manure—I mean the practice of summer fallowing. It has been ascertained that the quantity of vegetable matters contained in old sward, amounts to twelve tons an acre. If the ley is cross-ploughed, this vegetable matter is turned to the surface, generally when it is in an active state of fermentation or decay, to the wasting influence of the sun and winds, and at least one half of its fertilizing properties are lost to the soil. The principal object of a summer fallow is to subject the soil to thorough pulverization—a very commendable object, but which I think is as well effected, on the first furrow, by the harrow and the natural decay of the vegetable matters of the sod. This is every where penetrated by the roots of grasses, &c., and if the sod is well turned, these undergo speedy decomposition, and leave the soil light and loose, pervious to heat, air and moisture, essential agents in vegetable growth. The modern practice is to substitute for the naked fallow, a fallow crop, as potatoes, corn, oats, &c. upon the first furrow, preparatory to a crop of winter grain. The advantages of this practice are, the manure is all saved to the soil, the expense of labor is diminished, and an additional crop is obtained. The only plausible reason now urged for naked fallow is, that it is necessary, on tenacious clays, to clean the land.

The alternating system of husbandry has not obtained among us that consideration which its importance demands. It is well known that ordinary lands will not bear a succession of the same crops without a successive diminution of product; and that if grain, grass, and roots are alternated or succeed each other, the decrease of fertility is much less apparent. This is ascribed to the well authenticated fact, that different plants exhaust different fertilizing properties of the soil, or, in other words, that each species requires a specific food, which other species do not take up. It is now generally conceded that wheat will not do well in a soil which has no lime in its composition—that clover and lucerne require gypsum—that flax cannot be raised on the same ground oftener than once in six or eight years, with advantage. These facts are explained upon the ground that on analyzing wheat, it is found to contain lime; clover, on analysis, has yielded gypsum at the rate of four bushels to the acre—and the supposition is, that a crop of flax exhausts the soil of some property essential to its perfection, which it takes years to restore. The crops can derive these supplies from no other source than the soil; and if the supplies are not there, the crop will be either deficient or defective.

There is still another reason to offer for alternating crops. The soil, if in grass, becomes annually more hard and compact; the roots are consequently restricted in their range for food; the heat and atmosphere become partially excluded, and the decomposition of vegetable food is arrested. The consequence is, that the finer grasses gradually disappear, or run out, as it is termed, and the grass crop gradually diminishes.

If ploughed and cropped occasionally with roots, these inconveniences are obviated; the soil is broken and pulverized, and rendered pervious to solar and atmospheric influence, and the vegetable food which it contains is thereby rendered soluble; and if manure is given to the tillage crops, as it should and can be once during a course, the soil will become renovated and fitted again to receive the grass seed, with the prospect of a greatly increased burthen of hay.

The grasses are however not the only system of crops that are improved by the alternating system of husbandry. The tillage crops, in turn, are alike benefitted, not only from the advantages of change which I have endeavored to point out, but from the vegetable matters of the sward, which, instead of remaining in a measure dormant and useless, are decomposed and become the active food of the crop; while the root crop, by their pulverizing and cleansing influence upon the soil, improve it, mechanically and chemically, for both grain and grass.

The arguments that I have urged for enriching your lands, and cultivating well what you do cultivate, apply with equal force to your domestic animals. It costs as much to keep a poor cow, or a poor sheep, or a poor hog, having reference to breeds, as it does to keep a good cow, a good sheep, or a good hog. And yet such is the difference in the breeds of animals, and sometimes between individuals of the same breed, that the good animals will return twice, thrice, and sometimes four times as much in product as the poor ones, for the expense of their keep. The mule is supposed to have a preponderating influence in the character of their progeny, and will multiply more rapidly than the female, the cross of any improved breed. Those, therefore, who do not choose to go to the expense of buying superior animals of both sexes, can, by purchasing a male, progressively improve their stock at a moderate outlay. If the best animals are retained for breeding, and kept in good condition, especially when young, the progress of improvement will be greatly accelerated. It is by judiciously selecting good animals as breeders, and by taking proper care of them, that the favorite breeds of domestic animals have been brought to their present state of unrivalled excellence in Europe. An observance of the rules will produce the same results here, in due time, that has resulted from their observance in Europe. Cattle are also essential to keep up the fertility of a farm. They convert the forage of a farm into meat, milk, and manure. The meat and milk go to enrich the pocket, and the manure to enrich the soil, and feed the crops.

As a general remark, it may be said, that labor and capital can be expended in no way more profitably by the farmer than by enriching his lands. God has given to us all the elements of fertility, of plenty, and of happiness. He has given to man the capacity of appropriating them to his own use. He has commanded him to exercise those capacities with diligence; and although He has not promised, He seldom fails to bestow upon those who honestly keep the command, the highest rewards in temporal happiness.

The orchard receives less attention than its importance demands. If men do not drink cider, they must use vinegar and will eat apples. The orchard supplies a grateful desert, and many economical culinary dishes for our tables—and often profitable commodities for the market; and it has of late become a source of substantial profit for the food which it affords to farm stock of every description. The apple, whether sweet or sour, affords much sugar, one of the most nutritious properties found in vegetables, which is readily converted into beef, pork or mutton, by the domestic animals on the farm. It is asserted by some, who have experimented in the matter, that a bushel of apples is worth as much, for their domestic uses, as a bushel of potatoes. If this is true, or if apples are worth half or quarter as much as potatoes, an apple orchard is a valuable appendage to the farm; for an acre will often give him from four to ten times as great a product in apples as it will give in potatoes, and without

the expense of annual cultivation. In our zeal to promote the temperance reform, I fear some have neglected this branch of farming economy too much. The old orchards are disappearing, and few new ones are planted. We may as well discountenance the raising of rye as of apples, as both are liable to be perverted to evil purposes; yet we may use both without abusing them. Wisdom, like truth, is often the medicine between two extremes.

But whatever objections may lie against the orchard, none, I am sure, can be urged against a well cultivated garden. This affords almost a constant change of choice delicacies for the table, at once grateful to the palate, and highly conducive to health. No man eats as good fruits and vegetables as he who raises them, for none can so well enjoy them in all their freshness and perfection. A good garden is a matter of farm economy; for while it may be made to contribute largely to the sustenance of the family, its labors may be performed at odd times by the laborers of the farm, or by those who can or will do little else, without much expense. The object of our toil, as I have observed, is to secure the rational enjoyments of life. There is no profession which can gratify these indulgences to a greates extent than the farmer, if he will, from the varied products of his farm and garden.

There are other sources of enjoyment, in the garden, besides the innocent gratification of the animal appetites. It may be a source of high intellectual enjoyment, of useful instruction, and of moral improvement. It stimulates to the study of natural science, tends to purify and elevate the mind, to prevent the formation of bad habits, and to increase the delights of HOME, where the social and domestic virtues can only be well nurtured and enjoyed. So salutary is the moral influence of a highly cultivated garden, that it has been considered a strong indication, wherever it is seen, of high intellectual and moral worth in the possessor. God put our first parents into the garden "to dress it and to keep it," and God commanded the man, saying, "of *every* tree of the garden thou mayest freely eat," except of the forbidden tree.

The utility of the silk business, as an auxiliary source of profit to the farmer, no longer admits of doubt, and so much capital has been vested in trees and buds, that this must become a branch of national labor. And to no class can it be rendered more profitable than to the farmer, if judiciously managed. He can buy, however limited his means, a few mulberry trees; these he can multiply himself, with but little labor; he can plant them about his fences and waste grounds; he can purchase a few eggs to begin with; an out building, or a spare room, may be converted into a cocoonery; and without further expense the children and females of his family can gather the leaves and take care of the worms. When the cocoons are perfected, he may increase his eggs, and find a ready demand, and a fair price, for the surplus cocoons. The avails of the sale, be it two dollars or five hundred dollars, may be virtually considered as nett profits to the farms. Fifty years ago I was familiar with the managment of the silk worm in my native town, then in the county of Windham. Under every disadvantage of those times, it was then profitable, and an auxiliary branch of household labor. I have every reason to believe it may be rendered much more so now.

In regard to the mulberry best adapted to farm economy, much speculation is afloat, and differences of opinions no doubt honestly exist. I think it may be laid down as a natural law, that plants attain to highest perfection, for all useful purposes, in the climate and soil where they are found indigenous; and that their useful properties are diminished in proportion as they are more or less removed from their natural zone. When the public mind has settled down to sober reality, I think this law will be found to apply to the mulberry; and that those species and varieties will be found to be best which are naturally best adapted to our climate and our soil. In corroboration of this fact, it may be stated, that in Italy,

whence we receive our best, and most of our sewing silk, the leaf of the black mulberry, which is there apparently indigenous, is almost exclusively employed for the production of this article. The white mulberry, which is perfectly hardy in France, has a decided advantage there over other varieties. The Brussa, in the mountains of Asiatic Turkey, and the Alpine, from the Alpine regions of Europe, both hardy species, are for the like reason deemed superior in elevated or northern regions, where they withstand the rigors of winters. The native red mulberry of our forests, *(Morus Rubra,)* though it has neither "far-fetched or dear bought" to recommend it, will ultimately, I think, be found to be as good as any kind we can cultivate. All the species and varieties cultivated will no doubt produce good silk, and some better in the north than in the south—as is the case with the apple, the pear, the peach, the plum, &c. each variety having its favorite zone and soil in which it best develops its highest flavor. In selecting fruit trees, it is always better to take them from a colder than from a warmer climate, because they will be more hardy, and mature their fruits in higher perfection. But a word more of the red mulberry. I have had presented to me a handkerchief, a most beautiful and substantial fabric, produced by the silk-worm from this native species of the mulberry. I have also several samples of sewing silk, of great strength and beauty, produced from like materials. And I am advised by Dr. Martin, a highly respectable gentleman from Kentucky, that his neighbor has sold sewing silk to the amount of $900 a year, for several years, produced by worms fed entirely on the native red mulberry; and that he has rejected offers of all other kinds of the mulberry, considering this decidedly the best.

If these observations upon the laws which govern the vegetable kingdom are correct, they plainly suggest to the cultivator, who raises the mulberry tree to produce silk, to select those kinds for his plantation which are most hardy, and which will occasion the least trouble and expense in preserving.

I should take pleasure, gentlemen, in giving you my views upon many other subjects which pertain to your business. If what I have said shall be of any value to you, I shall be happy in the consciousness of having fulfilled a high personal duty—that of benefitting my native state. If what I have said, shall prove of no value, I have certainly said enough. My object has been, the improvement, in their business, in their standing in society, and in their public usefulness, of the Farmers and Mechanics assembled around me.

The privileges you enjoy, and the opportunities you possess of improvement are great; and with moderate prudence and industry, virtues which always triumph, your condition in society will be respectable, independent, and in all probability, happy. Be content, therefore, with your lot—with the business which you have learnt, and are best acquainted with—and strive to improve in it, for your children and your country. *Let well enough alone;* and do not hazard present enjoyments for the precarious chance of doing better, in any business in which you are not practically acquainted, and in which, to you, there will be at least three blanks to a prize. And may a kind Providence smile upon your labors, and bless you in your stores, in your household, and in a pure and approving conscience.

The Cottage Door.

BY T. K. HERVEY, ESQ.

How sweet the rest that labor yields
The humble and the poor,
Where sits the patriarch of the fields
Before his cottage door!
The lark is singing in the sky,
The swallow in the eaves,
And love is beaming in each eye,
Beneath the summer leaves!

The air, amid the fragrant bowers,
Supplies unpurchased health,
And hearts are bounding 'mid the flowers,
More dear to him than wealth;
Peace, like the blessed sunlight, plays
Around his humble cot,
And happy nights and peaceful days
Divide his lowly lot!

And when the village Sabbath bell
Rings out upon the gale,
The father bows his head to tell
The music of its tale:
A fresher verdure seems to fill
The fair and dewy sod,
And every infant tongue is still,
To hear the word of God!

Oh! happy hearts!—to him who stills
The ravens when they cry,
And makes the lily 'neath the hills,
So glorious to the eye:
The trusting patriarch prays, to bless
His labor with increase;
Such "ways are ways of pleasantness,"
And all such "paths are peace."

BIRDS.—These are a part of God's creation, and objects of his care. 'He feeds the young ravens when they cry, and not a sparrow falls to the ground without his notice.' Birds are connected with man in the arrangements of Providence. They are made subject to his power, but not that he should exercise it in wanton cruelties, or their destruction. Instinct directs them to look to man for protection, and they approach him with apparent confidence. They collect around his habitation, and enliven it with their presence and their songs. They become familiarized to all around, and identified with the establishment itself—after a winter's absence, they re-appear in their wonted stations and announce their return with the sweetest melodies. Who is there, possessed of sensibility, that does not respond and cordially welcome them back?

Spring would not seem spring without them, nor summer productive of its usual pleasures. The absence of the little wren, with her peculiar twitter, depositing the materials of her nest in some nook of the portico or piazza—of the watchful sparrow, who eyes so cautiously while tripping up the steps or the threshold, picking crumbs for her nestlings—the versatile cat-bird, breaking forth in its ever-varying notes from its shady retreat—the yellow-bird and robin, with their favorite music, would leave a void which no human art could supply. How unwise, as well as unkind, then, must be the spirit that could interrupt their pursuits, or molest them!

There is no conduct more disgraceful to an intelligent being that wanton cruelty to any of God's creatures; and it is to be lamented that in a civilized, christian community, the wanton destruction of these little birds should be the sport or employment of idle boys, who, to execute their purpose, become truants from school, violators of the Sabbath, disregardful of the rights of others, and disrespectful to all who thwart their purpose. Have they no parents or masters to control them?

Could boys be restrained from destroying, in embryo, or at maturity, our birds, they would become greatly multiplied, and the pleasures which they give, as well as their usefulness, would increase with their numbers.—*Newark Daily Adv.*

Agricultural School Books.

THERE are two works in the course of publication, which we hope to see published in volumes, and introduced as class books for the senior boys, in our common schools. They will effect more, in inculcating a taste for rural pursuits, and in advancing the substantial interests of the commonwealth, than all the English Readers, Columbian Orators, and such like books, which now constitute the popular class books of our common schools. We want more working, and fewer idle men. Teach the young, that they can find profit, and honor, and happiness in rural pursuits,—and they certainly are to be found there in a greater measure than any where else,—the producing classes will be increased, the state will be correspondingly benefitted, and we shall be exempt from those commercial panics which periodically convulse the nation, and which may now be inflicted upon us at any time by our European creditors.

The two works to which we allude, are, first, "*Dictionary of terms used in agriculture, and in the sciences most intimately connected with its advancement*," published in the *Genesee Farmer*, and written by Willis Gaylord, Esq.

The *second* is "*Early lessons in scientific agriculture, or conversations*

on agriculture and the subjects connected with it, intended for the use of young men in and out of school." This is now publishing in the *Franklin Farmer*, and is said to be written by a Mr. Lewis, brother of the late Meriwether Lewis, but, at all events, a gentleman of an enlightened and useful mind.

Rocky Mountain Flax.

We know of no plant which seems to better deserve an effort for its introduction into the class of cultivated vegetation, than the one above named. The common flax plant is an annual; it is exposed to the depredations of many insects; to get the full amount of the crop it is necessary it should be pulled, and yet with all these drawbacks, it is a valuable crop, and indispensable for many purposes. If a plant possessing the same valuable qualities as the common flax, yet which would be perennial, and could be cradled or mown at maturity—(thus giving an annual succession of crops from the same root)—could be discovered and brought into use among us, and particularly in the fertile valleys and prairies of the western states, the advantages would certainly be very great. Such a plant is the flax of the Rocky Mountains; and the individual or the society that shall introduce it into cultivation, should it answer present indications, will be considered as benefitting the agriculture of the country essentially. Of the various notices which we have seen of this plant, we select the following as most particularly describing its appearance, and the extent of its growth in those regions.

Mr. Parker, in his excellent narrative of his journey across the Rocky Mountains, from the Mississippi to the Pacific, says, "flax is a spontaneous production of this country. In every thing, except that it is perennial, it resembles the flax that is cultivated in the United States—the stalk, the bowl, the seed, the blue flower, closed in the day time and open in the evening and morning. The Indians use it in making fishing nets. Fields of this flax might be managed by the husbandman in the same manner as meadows for hay. It would need to be mowed like grass; for the roots are too large and run too deep in the earth, to be pulled as ours is; and an advantage that this would have, is, that there would be a saving of ploughing and sowing." This was on a branch of Lewis or Snake river, of the Columbia.

In a late journal of a passage across these mountains, by Mr. Oakley, of Illinois, under date of the 21st of July, 1839, occurs the following: "Encamped to-night in a beautiful valley, called Bayou Selard, twenty-eight miles from the head of the south fork of the Platte. It is a level prairie, thirty miles long and three wide, and was covered with a thick growth of flax, which every year springs up spontaneously."

Whether the Rocky Mountain flax will prove to be as near the common flax as is supposed by Mr. Parker, may be doubted; but that it is unlike, and far superior, to the two or three kinds of native wild flax that have before been discovered in the United States, would also seem to be clear. A tract of ninety square miles of flax, such as Mr. Oakley described, would be a sight in any country, and would rival the grass covered prairies of Illinois.—*Albany Cultivator.*

Resources of the West.

Few persons, I suspect, thoroughly realize what are the capacities of the valley of the Mississippi, though every body has been talking and writing about it these twenty years. A writer in the N. Y. Review sets the matter in a most forcible light, as follows:

"Look at it; in that valley there are one million four hundred thousand square miles, or eight hundred and ninety-six millions of acres, while Great Britain, with all its islands, contains but about eighty-eight thousand square miles, or fifty-six and a half million of acres. And what is the character of this region? One third of it, at least, is capable of cultivation and thick settlement, and one third is four hundred and sixty-six thousand square miles in extent, about seven times as great an area

as all the available land in England, Wales, Scotland, and the islands. Look at it more minutely, and you will find, from the cleared fields of Ohio and Indiana, to the edge of the barren prairies of the Missouri, and from the wild rice swamps of the north, to the cypress swamps of the south, fertile beyond example, almost level or undulating, and accessible in every direction. Never was there a finer country for the agriculturist; standing at his farm house door, in the interior of Ohio, Indiana, or Illinois, a thousand miles from the salt water, he may see his produce afloat on its way to N. York or Europe; in a very few years five complete lines of water and railway communications will exist, between the interior of Ohio and the ocean; four are now in operation. Nor is that valley destined to be less eminently manufacturing than agricultural. The state of Ohio, if we may rely on her geologist, Mr. Mather, contains as much bituminous coal of good quality and easy access, as all England and Wales; and Ohio, in this respect is, he thinks, no richer than western Pennsylvania, western Virginia, and Kentucky; judging from the little that is known, Indiana, Illinois, and Missouri, are probably underlain to a considerable extent by this same great mineral treasure. Nor is it coal alone that abounds in the west; from the head waters of the Cumberland river across Kentucky and Ohio, extend a bed of iron ore twenty miles in width. Tennessee is filled with iron; immense beds were lately opened in Indiana—and who has not heard of the Missouri mountain of that most precious metals? Already do Pittsburgh and Cincinnati, yearly, manufacture some seven or eight millions of dollars worth of iron articles for export to other ports; and lead abounds also; salt is met with in inexhaustible quantities; lime is universally distributed; and the finest freestone found in the greatest profusion.

Here, then, is a land, the soil and climate of which favor tillage in the highest degree; the interior of which is far more easy of access than the interior of any country in Europe, and filled with mineral wealth. Within its limits, grow maize, wheat, hemp, flax, tobacco, and sugar. It is a land which scarce needs foreign commerce; it is a world within itself; there is scarcely one considerable article of commerce, if we except coffee and some dye-stuffs, which the Mississippi valley cannot furnish. The first flint glass made up in America, was at Pittsburgh; the porcelain earth found within the limits of that region, rivals that of China; the lakes abound in fish; and the burr-stone of Ohio may compare with the best from France.

Now what, in the common course of things, must be the result of this wealth and capability? A dense population, a population of not less than one hundred and twenty millions of people; nay, if we base our calculations on the present population of France, of not less than one hundred and sixty millions; that is to say, a population greater than that now living in Great Britain, Ireland, France, Holland, Spain, Portugal, and all Germany.

From the New England Farmer.

Science applied to Agriculture.

CHEMISTRY has been styled "the secret process of the matter, that from which the forms of things originate." It is a science as universal in its operations as the combination of different simples in forming compound substances. Hence, the air we breathe, the earth we walk upon, the rain that cometh down from heaven and watereth the earth, the food we eat and the raiment we put on; in short, every thing, not only those which render our existence comfortable, but those which form its enjoyment, are the result of its operations and subject to its laws. Even ourselves, "fearfully and wonderfully made," a curious compound of undefinable, enduring mind, and perishable, incongruous matter, come within its sphere, and possess enough of its "subtle agencies" to invite the research of the most persevering to an occupation for life. In fact, we live in a grand laboratory, where chemical action is continually going on, not in a single set of them, but in a stupendous whole, and where it will continue to go forward, until the mass of matter on which

it operates shall, by a grand explosion, be thrown back to chaos. Mind truly may escape the catastrophe of ruin, and the clayey crucible in which it experienced its remodeling and assimilations; but in all things else the amalgamation must be complete.

Can it for a moment be imagined that a science of so general operations and such visible effects, can be unimportant to a farmer? Take his soils; they are the result of a chemical combination of earths, say the disintegrated parts of rocks, and vegetable matter in a decayed or decaying condition. Now all rocks, as the sciences which claim more particular kindred with them will determine, are not composed of the same material, consequently the earths which collect around them must differ in proportion as the sources from which they originate; and the early productions of vegetation are such as the peculiar nature of the earths most naturally excites, and these again are possessed of different constituents in their decay, both of plants and leaves, and when the parent stalk has fulfilled its maturing process, form soils of varieties differing from those which are the effects of different circumstances. Thus a soil on which the dark hemlock sheds its deep foliage, differs from that which sends the towering pine majestically high; that of the maple differs from the ash; the oak from the elm, and so on.

Soils in high regions have usually less depth and contain a proportionably greater amount of earthy matter than those of a lower territory, from the fact that vegetable matter is easily brought down by the haws of spring and rains of autumn, and deposited in places which nature seems to have provided for its reception. These soils are usually of the most fertile character, yet they must, in some degree, vary in proportion with the mountains and forests whence they originate. Thus we see the valley of one river more fertile than that of another—a circumstance which chemistry can obviate, by determining what the *lacking* quality is, and how it may be provided, or introducing plants adapted to that peculiar soil. The analysis of soils, sufficient to determine their productive qualities, is a very simple process, and soon passed through. In order to perform it, the farmer need not be at expense for an extensive apparatus, nor restrict his operations to drams and pennyweights. His business is of a *wholesale* nature; his observation can mark the changes of soil, and by analyzing a small portion of a particular one, the character of the *whole* is sufficiently determined for general purposes.

Soils which, in a state of nature, are sometimes of a character that renders them worthless, by a chemical process are rendered fertile. Take our swamps, which are to be found in almost every town, some of which have bottoms as deep as western prairies, and "as rich as mud;" yet in a state of nature they are almost as worthless as the desert of Sahara for agricultural purposes. How are they to be made the most profitable of the farmer's domains? They must be cleared and drained, to be sure; but when all this is done there is yet one thing lacking, for they are as barren as an ash-heap. What is "the one thing needful?" We respond, not only to show that *chemistry* has a remedy, but also to assure those who pretend that our state surveys are useless operations, by giving an anecdote.

Somewhere in Massachusetts, (we could tell where) an old gentleman, who had tilled the earth carefully and laboriously, until his "threescore years and ten" had nearly vanished, pointed the Commissioner of the geological survey to a piece of very deep rich muck land, and complained bitterly that with all his industry, he could make it produce nothing but weeds. With his usual tact, the Commissioner assured him the only reason why his labors were not requited, was that his land was *too rich*. "Too rich!" said the veteran farmer, "it can't be: we wish to make our land as rich as possible, and labor incessantly to promote this object." Had he been acquainted with the beautiful operations of chemistry, how it applies itself to every part of the operations of agriculture, he might perhaps have saved himself much labor, and a rich harvest from his

land through many years. More, by the same labors he might have increased the value of his surrounding fields, by bartering from them their sterility, and repaying load for load from the rich deposit from his muck bed. This was all that was necessary to scatter fertility all around him—simply to carry off this rich vegetable matter which had been accumulating for ages, and replacing in its stead his sands or loam, or whatever that savored of barrenness.

Lands from mismanagement may acquire a diseased and sickly, as well as an exhausted state.—They may become too sour, too bitter, or some other of the evils which bad management induces, may attack them. Then are they like a diseased stomach, totally out of order. Usual applications will have no effect. They, like the sick man, must be dealt with according to the disease. And here we ask leave to introduce another anecdote, in support of our sentiment, that chemistry is an important science to the farmer. One of that ancient and honorable fraternity was one day heard to complain, by a son then in college, that such a piece of land produced but "*leetle.*" "Lime it," said the son. "Lime it!" said the old man, "you, when you have not done a day's work on the farm in three years, come from college, and to repay your father's toil in your behalf, undertake to teach him how to farm it." "*Lime it*" said the son—"the soil is too sour: an alkali will neutralize an acid, and your field will be productive." The father at length tried the experiment, and saw a good effect, and so thoroughly was *he* convinced of the utility of this science in agriculture, that he said his sons might all go to college to learn to be farmers, if they all give assurance of similar acquirements.

Chemistry in agriculture applies itself in a thousand ways, and produces a thousand good effects. Nature is a great workshop, where she is continually carrying forward her operations. Economy is a universal law in all her dominions. She forms nothing in vain, and where the purposes of its formation are answered, and it moulders back to decay, she does not admit of the least waste in all its parts. She carries out with the nicest precision, the salutary injunction, "gather up the fragments, that nothing may be lost." Hence what is not available in one part of her operations, is applied to another; and so in her grand concerns, each fills a "part of the stupendous whole." To imitate and assist her in carrying this law into effect, is a part of the service of the farmer, and in proportion as he does his duty, will his labors be rewarded. But if he is remiss, if he allows his soils to remain sterile, or suffers them to become exhausted—if he allows his manures to waste their richness on the atmosphere, or suffers them to be injudiciously applied to his lands—if he suffers anything to waste uselessly away, which with due care might benefit his soil, leanness will set a landmark to his possessions, which his neighbor will not try to remove; famine will enter his premises, and the horrors most likely seize upon his mind. W. B.

Mount Osceola, Jan. 27th, 1840.

We have been greatly pained ourself, on viewing the like of what is described below, taken from the Genesee Farmer. We think there are many farmers who are not likely to be too often reminded of their negligence in regard to this subject. But, perhaps, they will say, it is our own business, not yours. True; yet we wish to do all the good we can to others, as well as to ourself, and for this reason we lay before our readers the following.—ED. W. FARMER.

Care of Farming Tools.

We believe it may be safely asserted, that the farmer, in a course of years, sustains as much loss, or is put to as much expense in procuring tools, by their decay, in consequence of needless exposure, as from their actual wear on the farm. How many are the instances in which the farming implements, the ploughs, harrows, roller, &c., instead of being carefully housed when their use for the year is over, are left in the fields, or peradventure drawn up in battle array in front of the house, occu-

pying a goodly portion of the road, and when covered with snow, forming most convenient places for breaking horses' legs, tearing off shoes, &c. &c. Perhaps, in addition to these, are sundry wagons, carts, hay-racks, and other necessary things, like the former, exposed to the decay which must result from exposure to the rains, the freezings, thaws and snows of winter. Now, one such season of exposure, does more to weaken the wood of these implements, promote decay, and render new purchases needful, than their ordinary wear on the farm, with careful usage and protection from the weather. As a general rule, it may be remarked, that no implement, tool or carriage of any kind, should be exposed when not in use. Those not wanted in the winter should be secured from the weather during that time; and so with those not required during the summer season, as sleighs, sleds, &c. The skillful, thrifty farmer, is known by his attention to the minor points of agriculture, by his care to save as well as to acquire; and he who neglects the lesser things cannot fail to find the drawback on his profits large and constant.

From the N. E Farmer.

A Knowledge of Botany Important to the Farmer.

Botany, or the science of plants, is one of very great importance to the world, inasmuch as from its subjects we derive many of the most important remedies for our sicknesses, as well as the essential and luxurious articles of our diet in time of health. So greatly important are its subjects in supplying the physical wants of man, that if they were extinguished from the earth, then indeed it would become a desert, unfit for the abode of rational beings, whose existence here must also cease with the death of vegetable nature.

The importance of a knowledge of this science to a *farmer*, is so clear that it might seem an idle waste of words to employ them in attesting the sobriety of the fact. He lives surrounded by the vegetable kingdom. The employment of *his life* is to cause the herb and the tender plant to shoot forth with more luxuriance, and to improve in quality under his nursing care. All nature contributes of its energies to aid him in his grand designs. The storm and the sunshine, day and night, times and seasons, are powerful auxiliaries in accomplishing his will. Nor are the results of his labors, his failures or successes, fraught with consequences to him alone. "The *king* himself is served of the fruit of the field." The wondering eyes and fainting stomachs of every other class in community, from the king on his throne to the culprit in his cell, demand of him the life-continuing necessaries and comforts of their existence. To them, then, he is responsible for the care with which he sows and the attention whereby he reaps.

It is not our object in this short communication, to call the attention of young farmers to the analysis of flowers, and by that to a classification of plants. This, however *important* it may be in the economy of farming, would be deemed an act of ultraism quite unpardonable. Still, however, its advantages must be evident, as the anecdote of the immortal Linnæus will fully demonstrate. It will be recollected by many, that in one of his botanical excursions he visited a country where the cattle were all dying off as by a pestilence, greatly to the dismay and pecuniary damage of the inhabitants. By his research, he discovered growing in their fields a plant, which from its peculiar features, he pronounced the cause of the sad calamity. His discovery was communicated to the inhabitants, the weed destroyed, and the evils which it had occasioned were stayed. How far such applications of this science might produce salutary effects in this, and indeed all countries, we know not. There are probably many plants that we scarcely notice, which, in their present localities, are exercising more pernicious effects than we usually imagine; and were their qualities fully known we should probably be wonders to ourselves that we allowed their existence, while their extirpation might destroy causes which are actually impeding our progress.

The connexion between vegetable

physiology and practical agriculture is obvious, from the fact that all plants are living things, having periods of germination, growth, maturity and decay, and that to carry them through such an existence, they are provided with organs adapted to the various purposes which their existence requires—such as nutrition, exhalation, &c.; that their growth, like that of animals, consists of an extension of their parts, which in different individuals varies in proportion with the circumstances attending it, and with the species and variety to which they belong.

Plants, unlike animals, are destitute of the powers of locomotion—consequently, the materials which continue their existence and enter into their composition and growth, must all be found in and around the little territory they occupy. Consequently, a knowledge of their nature and habits is of the greatest consequence to the cultivator, for without it he cannot adapt them to localities favorable to their perfect development; while by an acquaintance with these, he may, as has been done with many of our most valuable vegetables, cultivate them in a perfection far beyond what the workings of nature ever accomplished, even under the most favorable circumstances. Thus science aids him continually, if he will invoke her aid, in bringing new and undreamed of qualities to light. But if *ignorance* of the subjects of his care and solicitude, spreads its black cloud over his operations—his chances of success are small—not one, against ten of failure. Plants have the power of extracting from the atmosphere and the earth, such qualities as are best adapted to their growth; or rather they, after having partaken of the aliment which nature provides them, have organs for throwing off such substances as are foreign to their composition. Hence we see that they will not often for two generations flourish to advantage on the same soils, and that those which are most tenacious of the parental inheritance, will eventually extract all those qualities, unless they are renewed, which are peculiar to themselves, and become extinct. While the earth is thus exhausting itself in the support of one kind of plant, it may be accumulating materials for the advancement of another; and from this supposition leads us to adopt a system of rotation of crops, a system which we find pervading the operations of nature, from her noblest forests of pines and oaks, to the more humble groves of ferns and lichens.

Wood Painting.

The advantages of covering wood buildings with paint are so obvious, that explanation or enforcement must be alike unnecessary; the only thing requisite would seem to be the ascertaining of the best method of performing the work. We paint our buildings in the first place for ornament, and in the second place to give their materials greater durability. The first is depending in a great measure on the coloring materials employed, and the taste shown in their adaptation; the last on the quality of the articles used, and the skill with which the work is done.

The closing of the pores of the wood, or saturating the surface of the wood so as to exclude atmospheric action, is the great point to be gained, and for this we must mainly rely in the oil, the coloring matter only serving to form a coating to the wood, or protecting the surface, so long as it is combined with oil. It is a common complaint, that paint on buildings is not as durable now as formerly, and numerous buildings, to be every where seen, almost denuded of paint, that have stood but a few years, would seem to give some grounds for such an impression. If such is the case, the fault must be in the material, the preparation, or the putting on. There is unquestionably a great adulteration, both of oil and white lead, practiced in many cases, but it cannot be so general as to justify the inferiority of modern painting. That it is not put on with as much care and skill, will hardly be admitted; the only inference, then, would seem to be, that the fault is in the preparation, and such we believe to be the case.

If we can ascertain what is necessary

to have painting durable, and determine the manner in which it is usually performed, we may perhaps arrive at the source of the evil, and so be able to point out a remedy. The first object to be attained, is the saturation of the entire surface with oil, and this should be applied as long as it will be readily absorbed. Utility should be attended to before ornament, and the coloring is comparatively of second rate interest. If oil, without any paint, was applied once or twice, experience shows that the wood will be much better protected, and perhaps in the end would be found the cheapest method; but the first coat would be considerably enhanced from the additional number of coats that would be required. Modern painters of buildings seem to direct much of their attention to the rapidity of execution, and this has been found incompatible with the proper filling the wood with oil, without extra ingredients or preparation. Oil, in sufficient quantity to close the pores of the wood, applied with no preparation except the ground lead, would not dry so quickly as is desirable, where haste alone is consulted, or appearance, without regard to permanence, considered in the work.

The preparing of drying oils, or the ingredients that, mixed with oils, will cause them to dry or harden almost at once, has become a regular branch of trade, and mixtures of spirits of turpentine, litharge &c., &c., are found for sale at the shops, and used extensively by painters. The consequence of this practice we believe to be, that the oil or paint so prepared, dries with such rapidity when applied to the wood, that little or none is absorbed, the pores are only closed by the paint, and as this has little firmness, owing to the composition of the oil by the ingredients added, or the small quantity of the oil combined, it soon gives way before atmospheric action, and the wood is left at once unpainted and unprotected.

To be convinced that turpentine must be injurious to the durability of paint, we have only to remember the effect that turpentine produces on oil spots on clothing, floors, &c. The housewife is well aware of the effects in such cases, and the painter should know that the operation of the turpentine used by him, is precisely similar in proportion to the quantity used, and that where mixed with oil, a decomposition of the latter is accomplished by it. Every one is aware of the fact, that in painting pine boards, if what is called a fat knot occurs, (or one in which turpentine abounds,) it is almost impossible to cover it with paint, and the reason is obvious; the turpentine decomposes the oil with which the paint is mixed, and the latter, left free, is at once rubbed off, since the principle of adhesion is destroyed. In painting a pine floor, a few years since, in which such knots occurred, we found it impossible to make the paint adhere, until by repeated applications of oil, and the consequent decomposition of the turpentine in its combination with the oil applied, the surface was so far freed as to permit adhesion.

In modern painted buildings, we frequently find that as soon as the superficial gloss wears off, the paint seems in a state of dry powder, easily rubbing off on every object it touches, or washing off in every rain. Here the cause of the defect is evident. So much turpentine, or other drying matter was added, that the oil was decomposed instead of being absorbed, and the oil, which is the only principle of durable adhesion in paint, being absent, as a natural result, the paint soon crumbled to powder. Such paint, too, while it lasts, affords but little protection to wood. Owing to the absence of oil, it soon becomes permeable to moisture, the pores of the wood, being unclosed, retain it, the apology for paint retards its evaporation, and experiments and experience would seem to show, that wood thus nominally protected, decays faster than it would if left to the usual action of the elements, in its natural state.

All the preparation that oil needs to make good paint (and in this we are confident every painter who understands his business will agree with us,) is a thorough boiling to force it from its impurities, and render it perfectly clear and limpid. The desire of despatch

has led to additions to the oil, which indeed ensures that object, but are destructive of durability, and certainly add little or nothing to the finishing or ornamental part. We strenuously advise farmers to paint their buildings, yard fences, &c., as it contributes to give a look of neatness and thrift to the farm, that nothing else will do, and besides, if well performed, it increases their value and durability in a much greater degree than the expense. But they should remember, that in painting, every thing is depending on having the work well done, the articles good, and the operations skilfully performed. Great haste in painting is inadmissible; oil must be applied to the wood, and time allowed for absorption. Some painters talk of laying on two coats of paint in a day; they may do it, but we are confident for him who looks more at durability than despatch, and has more regard to permanence than to the saving of a few shillings in expense, or a few hours in time. —*Cultivator.*

From the New England Farmer.

Education of Farmers.

Mr. Breck—In your notice in the New England Farmer of the highly cultivated and productive farm of that very useful and distinguished gentleman, E. Phinney, Esq., of Lexington, your remark that he assured you that his intention was first called to the subject of agriculture by reading the New England Farmer, and that at his establishment you realized all you had expected to see, where the *science* of agriculture, guided by the hands of learning and practical skill, was brought to the aid of practical farming.

This recalled to my mind a subject of vast moment, not only to the agricultural interest of the United States, but to every interest and craft into which human society is subdivided; I mean a radical defect in our whole system of education, from the common school upward to the final graduation at our colleges, during the whole of which important period of human life, the attention, the taste, the sympathies of the educated class are systematically diverted and estranged from the subject of agriculture and the pursuit of the great mass of our people, as if an evil spirit rather than a good and bountiful God, had first assigned to man the cultivation of the earth as his highest and noblest pursuit —as if to keep up the humbug importance of the learned professions, as if the statesman, the scholar, the lawyer and divine, need know nothing or care about agriculture—the pursuit, perhaps, of sixteen twentieths of our population, and by which all classes "live and move and have their being;" as if national wealth, independence, happiness and morality, had nothing to do with the increased products of the earth.

Now, sir, how comes it to pass in this boasted republic, of almost boundless extent, of every variety of climate, soil and production, that the principle of equality is entirely reversed—that which is showy takes the precedence of that which is substantial—that he who lives by professional quackery, the honest cheateries of trade or gambling speculation, is admitted by common consent to a higher rank in the public estimation than the farmer? I answer, our system of education lays permanently the foundation of this very state of things. Admit the science and art of agriculture to an equal importance in our institutions of learning with chemistry, architecture, law or theology: let it be considered one of the sister sciences, and let stated lectures be delivered to our young men during the period of their collegiate education, on the science of agriculture as on chemistry, comparative anatomy, or oriental literature, and a new day would dawn on the agriculture of the country and the condition of the husbandman. When these young men go forth through the length and breadth of the land to exert that influence upon society which belongs alone to education and intelligence, to direct public sentiment, make laws and rule the land, in the walks of private life, in the halls of legislation, agriculture would find warm and hearty friends, and staunch and bold advocates in the learned class, and grants and aid from

the states would be as common to agriculture as they have been to learning, law, medicine or theology; and the now unheard of donations for agricultural learning, would become as common, and more honorable and useful than the foundation of professorships of Greek, Latin, oriental or polite literature.

Is not agriculture as much a science as law, medicine, theology, or moral philosophy? Is there not as much in agriculture to form a good, useful, and virtuous character in our young men, as in the discussion and lectures on mere abstract morals or modern literature?

Had our legislators of the present day enjoyed the benefit of agricultural lectures in the course of their education, and been made early in life to realize the importance of agriculture as the true source of national wealth and independence, can you believe for a moment that by a partial system of legislation, predicated on the superior claims of commerce, the mechanic arts and manufactures, to state and national encouragement, they would have made the country dependent on the monarchies and despotisms of Europe for the supply of their daily bread? Is not our republic, by the annual importation of from fifteen to twenty million dollars in bread stuffs, reduced to the condition of a farmer spending annually more than his income, and in case of foreign war, unbalanced and diverted from its true and natural channel, as the industry of the country now is, must not famine and distress invade many portions of our glorious and now happy country?

It is said by some, that the idea of an agricultural professorship is Utopian and visionary. Other countries have found it necessary to enlist learning on the side of agriculture. In despotic Russia, in the colleges at Petersburgh and Moscow, are agricultural professors at the expense of government, and in the common schools and colleges in Prussia, agriculture is a part of the regular course of studies. In the German states, in France and Scotland, similar attention is given to agriculture.

Now, we have public spirited men among us with untold thousands, designed at last for some public benefaction, to perpetuate the usefulness and beneficence of its present owners, after they shall have passed from the scenes of this mortal life to the rewards of the just made perfect. Now, what object to such men can be presented, with higher claims to their beneficence, than agricultural education?

Very respectfully, your ob't serv't.

H. C. MERIAM.

Improve the Soil.

The article which follows, points out several methods of improving the soil. Every farmer knows very well the superior profit of a fertile soil in the production of crops that liberally repay him for his labor; but every one is not equally sensible of the various ways of enriching his lands, nor does he eagerly embrace every opportunity within his knowledge.

Farmers should awaken and look to the importance of this subject, embrace every chance within the reach of their means and information, to render their soil more fertile; and they will soon find a permanent improvement, and it will give better crops with less labor, for a mellow fertile soil is the most easy to work. Many means of improving the soil are neglected for want of information, and when new plans are recommended, they are adopted slowly, as many cannot confide in any practices that were not sanctioned by the usage of our forefathers.

"The golden rule in agriculture is to apply such manures and tillage, as will make heavy lands lighter, and light lands heavier, cold land hotter, and hot land colder." He only is a farmer who knows and follows this rule.

Lands are seldom so rich but it may be a matter of gain to increase their fertility; and few tracts are so poor but that with proper tillage and manuring, they may be made the residence of plenty.

Manures are composed of all those substances which either directly, or indirectly, supply plants with their requisite food, by means of which they are enabled to expand and come to maturity.

In the first place, the different earths will serve to manure each other. Thus, clay is a fertilizer of a light sandy soil, and sand is equally a fertilizer of clay. Where clay is applied to a sandy soil it should be carted on in the fall, and spread evenly over the ground, that the frost may pulverize it before it is mixed with the soil in the spring.

The better these earths are mixed in the respective soils, the more sensible and immediate will be their effect: but their principal excellence is that they are calculated permanently to improve the soils to which they are applied. Stiff loams are also in the same way assisted by sand, and sand again by these; but neither in so great a degree as in the former case. Generally it may be observed that all light, dry soils, are improved by being mixed with heavy earths, and *vice versa*.

Sand and fine gravel will greatly fertilize the soil of bog meadows, and this earth again is very good manure for all upland soils. It is peculiarly excellent for Indian corn when applied to the hills, and is very good for flax, hemp, and most other summer crops. Like gypsum, it is friendly to the growth of white clover. When applied to upland grasses it should be laid on as a top dressing. Every kind of black mud from ponds and swamps, answers a somewhat similar purpose; though if the mud be stiff and clayed, it should only be applyed to a light dry soil.

The different sorts of marl found in bog swamps are also excellent manures for all upland soils. These earths are usually found at the depth of from one to three feet from the surface, and are either of a white, gray or brownish color. The former is the most efficacious, and the latter the least so, their strength being in proportion to the quantity of carbonate of lime they contain. It is best to mix these earths with the mass of black earth or bog dirt, that forms the upper stratum, in order to reduce their strength, and when thus mixed, a load of even the weakest kind is more efficacious than two of common barn dung.

Their operation as manures is similar to that of the Nova Scotia gypsum, have little or no effect when first applied to wheat and rye; but by its afterwards covering the ground with a thick growth of white clover, it is rendered fit for producing largely of these crops. The same may be observed of the bog dirt. Like this, these marls are peculiarly excellent for Indian corn, and all summer grain, and a less quantity is sufficient. They may be used as top-dressing or otherwise.

Ashes as a manure are found to be more efficacious in some parts of the country than in others, generally most so, when applied to lands near the ocean. In some parts where the soil is extremely light and the bottom sand, the farmer can afford to pay twelve and a half cents a bushel, while in other parts, they are suffered to lie untouched about the potasheries.

Ashes generally answer the most valuable purposes when applied to Indian corn, particularly where the soil is not suitable to this plant. Where the soil is wet, cold, loamy or clayey, the plants are apt to get stunted with the cold rains which usually fall after planting; and then the ashes serve to supply the natural deficiencies of the soil till it becomes fertilized by the sun. But where the soil is natural to the growth of this plant, and there is no danger of its being stunted at its outset, perhaps it may be better to apply the ashes later, so that the plants may derive the greatest assistance from this manure, while the ears are setting and forming.

Ashes should generally be used for top-dressing; their salts lose nothing by exposure to the air, and soon find their way into the soil.

Soot is much more efficacious than ashes; besides salts, it contains oil. The soot of coal is esteemed equally as good as that of wood. It is used for top-dressings, and requires about forty bushels for an acre. When applied to winter grain it should be sown in the spring; and the same may be observed of ashes. Cold soot is particularly very good for meadow lands which have become sour and mossy. This manure, can, however, only be had in considerable quantities in large towns.

Of salts, which serve as manures, the principal are the common sea salt, urine, stale of cattle, sea water, saltpetre and alkaline salts. To the latter, the virtue of ashes, as a manure, is principally owing. Soapsuds is in part valuable on account of its alkaline salts, and perhaps the neutralized oil it contains adds much to its value. It is usual to throw this manure away; but this is a needless waste. It may be taken in the watering pot and strewed over the garden, where it will be of great service as a manure, and in expelling insects.

Yankee Farmer.

From the American Swine Breeder.

The Hog-Pen a Mine of Wealth.

The allotment of suitable enclosures, and the construction of convenient pens for swine, are matters of great importance to those who rear these animals with a view to profit. The miserable custom of permitting swine to roam at large, unattended by a swine-herd, and allowing them to gather food throughout extensive districts, cannot be too severely reprehended. It is desirable that every farmer who consults the comfort of his animals should have both pens and pasture—the latter well covered with clover, of small dimensions, and if possible, affording the hogs ready access to water. To effect this object, the fences which enclose the pasture may be extended so as to embrace a portion of some running stream, or if this is not practicable, some spring, from which water may be constantly flowing into an artificial reservoir. It is found that hogs thrive better, when they enjoy the means of slacking their thirst as nature prompts them, than when they are restricted to water drawn from wells and furnished at stated intervals. Even in the absence of a stream suitable for the purpose, or a spring, water should, if possible, be conveyed to some artificial pool or trough, in sufficient quantities for their use at any moment. The size of the pasture will of course depend, to some extent, on the situation of the farm, and number of hogs. In general, however, where the herd is numerous, it is deemed advisable, to scatter it in different enclosures, placing those hogs that are nearly of the same age and strength together. Small orchards well set in clover, afford an excellent pasture for hogs. Their manure greatly enriches the ground; while the roots of the trees, near which, in such enclosures, their rooting propensities are mostly exercised, derive great advantage from frequent loosening of the soil.

It is a matter of great importance to the farmer to provide such enclosures, and adopt such treatment, as will secure from his hogs the greatest quantity of manure. Hog manure is extremely valuable, and large quantities may be obtained with slight attention. Where these animals are allowed the range of small yards or pastures, the method pursued by a correspondent of the Farmer's Cabinet, will prove advantageous:*—"I usually keep and fatten, he remarks, four hogs in the year; these I keep confined in a yard twenty feet square, with a warm and convenient shed attached thereto, as a shelter for them during the night time, and in cold and stormy weather." Into the yard he places the scrapings of ditches, the dirt that is continually in and about buildings, and this became mixed with the straw with which they were littered. The whole was cleared out as often as was judged expedient. The quantity and quality of the manure would be greatly increased, if the pen was supplied with weeds, (an excellent way this of turning these noxious plants to a good account,) and in the absence of weeds, which by the way is not very common, even on our best cultivated farms, resort may be had to the woods; here the farmer has an abundance of leaves and other rubbish that may be used to great advantage. "By the adoption of the above course, more than twenty-five loads of manure was obtained, as the product of four hogs, and this, too, of a superior quality to that generally derived from the stable or yard."

Another writer in the Yankee Farmer,† says:—"My plan is this; yard the hogs through the year. Give each

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* Vol. ii. p. 43. † Vol. iii. p. 410.

hog, to work upon, ten loads of manure from the swamp. Some men think to avoid expense in keeping, by permitting their hogs to 'run at large,' or in a large pasture. This is a bad practice; the hogs 'run away' so much of their flesh, that it requires nearly as much to keep them in a thriving state as if they were yarded. If it did not, the pasture would be much more preferable for other stock. More than this, the hogs will convert about four loads more of mud into good manure, which will more than twice pay the extra cost of yarding."

Another correspondent still, of the same paper, remarks:*—"I keep my sty well littered with straw, leaves, weeds, soil from the woods, and meadow earth, obtained from ditching, by carting, together with that put into the yard, from two to ten loads per week. I sometimes put a few handfuls of rye in different places in the yard, and let in the hogs. Feeding them there for a few days, they completely stir up and commute the contents of the yard. I am confident that I make four times the quantity of manure my father did, and with no increase in the number of stock, and of a little better quality, too, comparatively none of its strength being washed away by the rains and evaporated by the sun."

The suggestions of a correspondent to the Northern Farmer, quoted in the Farmer's Register, contain much information on this subject. After stating the reasons which induced him to abandon the ordinary mode of suffering his pigs to run at large, for the better one of confining them in pastures—and his subsequent exchange of this for a smaller enclosure, which he contracted from time to time, until satisfied that a yard of twenty feet by fourteen, was sufficient for six hogs, if well supplied with materials to make manure to advantage, he thus continues:—"My method of supplying these materials is the following: after having cleared their yard at the season of planting, I put into it such portions of straw as I may have on hand after the season of fodder-ing is past; and if I have not a sufficient quantity of this to furnish the necessary supply till vegetable substances attain a sufficient growth to be profitably collected, I put in earth, collected from the low places by the side of the highway; though this I more generally place in or near my barn yard, in a situation to receive and retain the wash that might otherwise escape from that. Brakes and weeds of any kind are valuable. These I make use of, to the extent they are attainable, when in a green state, as I consider green vegetable substances, for this purpose, far more valuable than dry. Potato tops, when pulled for early use, before they become dry and shrivelled, I consider equal if not superior to any other green substance for this purpose. Pea vines I usually put into my hog yard after the peas are thrashed off, and if some are put in before being thrashed, they are as gratefully received by the inmates of the yard. The quantity of manure made by my hogs is, for each one, double that made by each cow for the same period of time.

We are inclined to dwell still longer on the subject of manure, because its great importance, and the proper modes of collecting the greatest quantity, seem in many portions of our country to be wholly overlooked. Especially is this the case throughout the western states. Trusting to the extreme luxuriance of the soil, the lands of many farmers are burdened with one exhausting crop after another, until at length the productiveness of the farm is materially reduced, and finally measures are necessarily resorted to, to improve an impoverished condition of the soil which proper manuring would have prevented altogether. Many persons seem to consider a yard where the dung of animals can be collected, sufficient for all purposes—little dreaming that upon the construction of this enclosure depends both the quality and quantity of the manure; that successive rains may be gradually washing away the most fertilizing portions of their yard, or excessive fermentation causing the escape of gases which, if possible, should always be retained. The dung of animals, when intended

* Vol. i. p. 67.

for manure, should be protected as far as practicable from exposure to the air. "He," says Arthur Young, Esq., "who is within the sphere of the scent of his dunghill, smells that which his crop would have eaten, had he permitted it. Instead of manuring the land, he manures the atmosphere, and before his dunghill is finished, another parish and perhaps another county." "As few exhalations," remarks Fessenden,* "as possible, ought to be suffered to rise from the excrements of animals. Fresh manure ought to be kept as carefully from the sun and rain, as grass which has been cut for hay." But how are these objects to be effected? The answer is an easy one. Prevent the rain from draining off the best portions of the manure, by constructing a yard in a dishy form, lowest in the centre, so that the urine of the animals may be collected in a reservoir and retained; and prevent fermentation, or absorb its products by occasionally scattering over the dung-heap a quantity of the same earth with which the yard is bedded. "Earth," remarks the author of the letters of Agricola, "is a powerful absorber of all the gases which arise from putrefaction. Put a layer of common soil along the top of a fermenting dunghill, from twelve to eighteen inches thick, and allow it to remain there while the process is carrying on with activity, and afterwards separate it carefully from the heap, and it will have been impregnated with the most fertilizing virtues. The composts which of late have attracted such universal attention, and occupied so large a place in all agricultural publications, originated in the discovery of the absorbing power of the earth, and in the application of it to the most beneficial purposes. A skilful agriculturist would no more think of allowing a violent fermentation to be going on in his dunghill, unmixed with earth, or other matter, to fix and secure the gaseous elements, than the distiller would suffer his apparatus to be set at work, without surmounting his still with the worm, to cool and condense the rarified spirit which ascends to evaporation. In both, the most precious matter is that which assumes the aeriform state; and to behold it escaping with unconcerned indifference is a demonstration of the most profound ignorance.

A slight fermentation in a dunghill, may indeed be advantageous in causing the woody fibre, contained in many of the substances deposited there, to decay and dissolve, but wooden fibre is the only vegetable matter that requires this process to render it nutritive to plants. In the straw of chaff and litter, as well as the leaves and other products of the forest—which may be advantageously placed in barn yards for conversion to manure—will be found considerable portions of fibrous matter, which must be fermented to be useful. It therefore becomes a matter of great importance to ascertain correctly how far this process of fermentation should be allowed to proceed. On this point Sir Humphrey Davy remarks:*—"In all cases where dung is fermenting, there are simple tests by which the rapidity of the process, and consequently the injury done, may be discovered. If a thermometer, plunged into the dung, does not rise to above 100 degrees Farenheit, there is little danger of much aeriform matter flying off.

"When a piece of paper, moistened in muriatic acid, held over the steam arising from a dunghill, gives dense fumes, it is a certain test that the decomposition is going too far, for this indicates that volatile alkali is disengaged.

"When dung is to be preserved for any time, the situation in which it is kept is of importance. It should, if possible, be defended from the sun. To preserve it under sheds would be of great use; or to make the site of a dunghill on the north side of a wall. The floor on which the dung is heaped should, if possible, be paved with flat stones, and there should be a little inclination from each side towards the centre, in which there should be drains, connected with a small well, furnished

* V'de Complete Farmer, p. 173.

* Vide Davy's Agricultural Chemistry, republished in the Farmer's Register.

with a pump, by which any fluid matter may be collected for the use of the land. It too often happens that a dense mucilaginous and extractive fluid is suffered to drain away from the dunghill so as to be entirely lost to the farm."

The urine of animals is one of the most valuable manures that can be applied to land; but it should be applied in a recent state, as a great portion of the soluble animal matter it contains is destroyed during the process of putrefaction. If unmixed with solid matter, it should always be diluted with water, as in its pure state it contains more animal matter than can be safely absorbed for the nourishment of plants.

According to some writers and practical farmers,* the value of the urine of cattle, if properly preserved and applied to the purposes of vegetation, is greater than that of all the dung which the same animals would yield. A letter from Charles Alexander, near Peebles, in Scotland, addressed to Sir John Sinclair, in 1812, contains much valuable information on this subject. "This intelligent farmer had long been impressed with the great importance of the urine of cattle as a manure, and he set about to discover, by a long and well-conducted series of experiments, the best method of collecting and applying it. He began by digging a pit contiguous to the feeding stable, but distinct altogether from that which was appropriated for the reception of the dung. The dimensions of this pit were thirty-six feet square, and four feet deep, surrounded on all sides by a wall, and the solid contents were one hundred and ninety-two yards. Having selected the nearest spot where he could find loamy earth—and this he always took from the surface of some field under cultivation—he proceeded to fill it, and found that, with three men and ten horses, he could easily accomplish twenty-eight cubic yards a day; and the whole expense of transporting the earth did not exceed twenty-two dollars. When the work was complete, he levelled the surface of the heap in a line with the sewer which conducted the urine from the interior of the building, on purpose that it might be distributed with regularity, and might saturate the whole from top to bottom. The quantity conveyed to it, he estimated at about eight hundred gallons. The urine was supplied by fourteen cattle, kept there for five months on fodder and turneps. The contents of the pit produced two hundred and eighty-eight loads, allowing two cubic yards to be taken out in three carts; and he spread forty of these on each acre, so that this urine in five months produced a compost sufficient for the fertilization of seven acres of land. He states farther, that he had tried this experiment for ten years, and had used indiscriminately in the same field either the rotted cow-dung or the saturated earth; and in all stages of the crop he had never been able to find any perceptible difference. But what is still more wonderful, he found his compost lasted in its effects as many years as his best manures; and he therefore boldly avers that a load of each is of equivalent value. Mr. Robert Smith, of Baltimore, has his stables constructed in such a manner that all the liquid discharges of his cattle are conducted, together with the wash of the barn yard, into a cistern, pumped into a hogshead, and applied in a liquid state to the soil which it is wished to manure. This mode of making use of this substance, is likewise recommended in the Code of Agriculture:—"The advantages of irrigating grass lands with cow urine almost exceed belief. Mr. Harley, of Glasgow, (who keeps a large dairy in that town,) by using cow urine, cuts some small fields of grass six times, and the average of each cutting is fifteen inches in length. There are disadvantages, however, connected with this mode of applying this powerful manure. It must be applied soon after it is formed, or oftentimes the putrefactive process will commence and deprive it of part of its efficacy. And, as urine is of a scorching quality, it is unsafe to apply it to growing crops in great heat or drought. Hence it is unadvisable to use it except for grass, after the month of April and May, un-

* Vide Complete Farmer, pp. 175—177.

less diluted. It is particularly useful in the spring, when the application of liquid manure gives a new impetus to the plant, and makes its growth more vigorous. This manure forces newly planted cabbages in a most remarkable manner."

In addition to pastures, pens, especially for fattening hogs, will be required, and upon the construction of these with reference to securing the double objects of convenience and economy, great attention should be paid. Many of the styes, even on extensive and otherwise well provided farms, are miserable structures, ill adapted to the comforts of their inmates and the purposes proposed by their erection. Mowbray, while writing on the conveniences for swine, remarks: *—"Room and ventilation are objects of the greatest importance, where numbers are kept, and dry lodgings, without which essentials success must not be expected. Nor are swine, in whatever state, proof against excessive cold, for I have known instances of their being frozen to death in their sty, and have always remarked, that severe weather materially checks their thriving, unless they be sufficiently defended from the chilling effects of the air. The sty, situated upon a dry foundation, as well as sheltered above, should be paved at the bottom, to the end that it may be kept clean and dry, the operation for which should be daily performed; for although pigs will wallow in the mire, they are yet more thrifty in clean lodgings. As swine, confined, usually employ their leisure time in demolishing with their teeth the wood work within their reach, the modern cast iron troughs are preferable; at any rate wooden troughs ought to be iron bound." "The pigging house should be warm and dry, and secure from the inroads of foxes and other vermin, which have been known to steal sucking pigs from the sleeping or absent sow. Short straw is preferable for a bed, but in not too great quantity, lest the pigs be smothered beneath it; this should be renewed, with due regard to cleanliness; and, as the unwieldy sow is apt to crush her young against the wall, it is proposed in the New Farmer's Calendar, to append an inclining or projecting rail around, beneath which the pigs may escape on the down lying of the sow." In the Complete Farmer,* we find the following observations:—"Swine should not be kept in close and filthy pens. Though they wallow in the mire, their object is coolness, not nastiness, and they thrive faster and enjoy better health when allowed clean and dry lodgings than when they are not thus accommodated. The late Judge Peters, of Pennsylvania, in an article entitled, 'Notices for a Young Farmer,' &c., observes, 'In airy, roomy, and moderately warm pens, paved and boarded, and often cleaned, they are healthy and thriving. They show a disposition to be cleanly, however otherwise it is supposed, and always leave their excrementitious matter in a part of the pen distinct from that in which they lie down. No animal will thrive unless it be kept clean.'"

* Mowbray on Poultry, &c., p. 163.

From the Chicago American.

The Farmer's Choice.

"A little house well filled,
A little wife well willed,
A little land well tilled."

Our ancestors were fed on bread and broth,
And woo'd their healthy wives in home-spun cloth;
Our mothers, nurtured at the nodding reel,
Gave all their daughters lessons on the wheel.
Though spinning did not much reduce the waist,
It made the food much sweeter to the taste;
They plied with honest zeal the mop and broom,
And drove the shuttle through the noisy loom.
They never once complain'd as we do now,
'We have no girl to cook and milk the cow;'
Each mother taught her red cheek'd son and daughter,
To bake, to brew, and draw a pail of water.
No damsel shunn'd the wash-tub, broom or pail,
To keep unsoil'd a long grown finger nail.
They sought no gaudy dress, no wasp like form,
But ate to live, and work'd to keep them warm.

* Page 164.

No idle youth—no tight-laced, mincing fair,
Became a living corpse, for want of air—
No fidgets, faintings, fits, or frightful blues,
No painful corns from wearing Chinese shoes.

From the Essays of Poor Robert the Scribe.

Who'll turn the Grindstone?

When I was a little boy, Messrs. Printers, I remember one cold winter's morning, I was accosted by a smiling man, with an axe on his shoulder; "My pretty boy," said he, "has your father a grindstone?" "Yes, sir," said I. "You are a fine little fellow," said he, "will you let me grind my axe on it?" Pleased with this compliment of "fine little fellow," "O yes, sir," I answered, "It is down in the shop."—"And will you, my man," said he, patting me on the head, "get a little hot water?" How could I refuse? I ran and soon brought a kettle full. "How old are you, and what's your name?" continued he, without waiting for a reply; "I am sure you are one of the finest lads that I have ever seen; will you just turn a few minutes for me?" Tickled with the flattery, like a little fool, I went to work, and bitterly did I rue the day. It was a new axe, and I toiled and tugged, till I was almost tired to death.—The school bell rung, and I could not get away; my hands were blistered, and it was not half ground. At length, however, the axe was sharpened, and the man turned to me, with—"Now, you little rascal, you've played the truant—scud to school, or you'll buy it." Alas, thought I, it was hard enough to turn a grindstone this cold day; but now to be called "little rascal" was too much. It sunk deep in my mind, and often have I thought of it since.

When I see a merchant over polite to his customers—begging them to taste a little brandy, and throwing half his goods on the counter—thinks I, *that man has an axe to grind.*

When I see a man of doubtful character, patting a girl on the cheek—praising her sparkling eye and ruby lip, and giving her a sly squeeze; beware, my girl, thinks I, or you will find to your sorrow, *that you have been turning a grindstone for a villain.*

When I see a man flattering the people, making great professions of attachment to liberty, who is in private life a tyrant—methinks, look out, good people, *that fellow would set you to turning a grindstone.*

When I see a man hoisted into office by party spirit—without a single qualification to render him either respectable or useful—Alas! methinks, deluded people, *you are doomed for a season to turn the grindstone for a booby.*

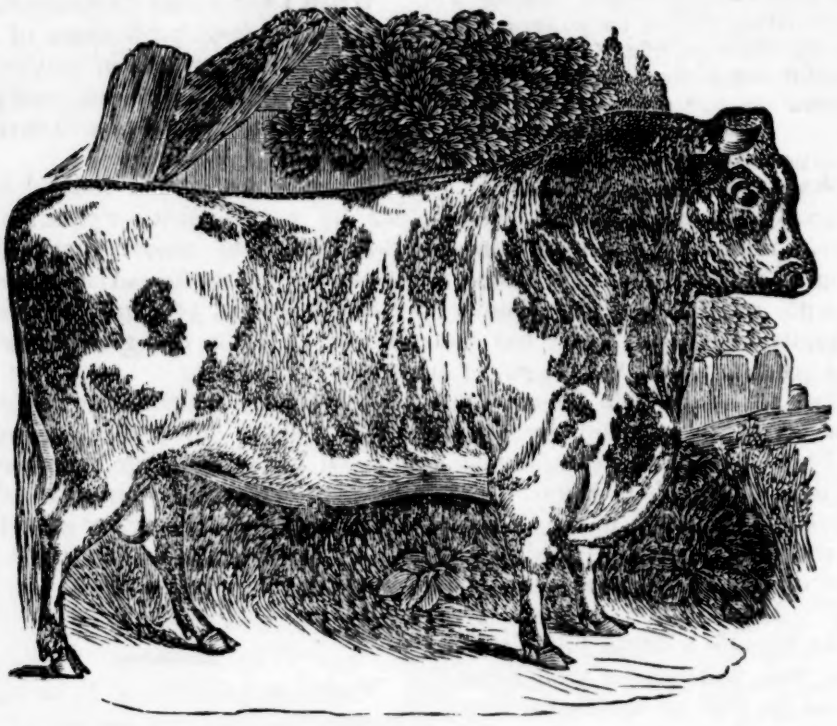
When I see a merchant or a mechanic trotting about town electioneering for himself for some office, because he is too lazy to work at his own calling, I think to myself, beware my good friends, least you be found *turning the grindstone for the wrong person.*

Radishes.

This root being liable to be eaten by worms, the following method of raising them is recommended in the Farmer's Assistant: "Take equal quantities of buckwheat bran and fresh horse dung, and mix them well and plentifully in the soil by digging. Suddenly after this, a great fermentation will be produced, and great numbers of toad stools will spring up in forty-eight hours. Dig the ground over again, and sow the seed, and the radishes will grow with great rapidity, and be free from the attacks of insects. They will grow uncommonly large.—*Broome Co. Courier.*

To divest Milk and Butter of the taste of turneps, cabbages, &c.—

Upon which cows have fed: put into each pail of milk, when fresh drawn from the cows, one pint of boiling water. The heat of the water dispels the odor of the turnep, which becomes volatile as the temperature of the milk is increased. This has been practiced and proved to be effectual, by the writer, in cases where cows have been fed two or three months in the year upon Swedish turneps. Marshall states that hot water is equally effectual when thus applied, in removing the taste of wild onions and leeks.



Durham Cattle.

The superiority of the New Improved Short Horns over the common stock of the country, and of others, consists in their early propensity to fatten, the marble-like mixture of the fat and the lean in their flesh, the lightness of hide and tallow, the destruction of the superfluous parts, as the large hanging dewlap, thick head, large horns &c.; their greater milking qualities in *general*, and their greater docility. The full blood is at present too high priced for most farmers to possess these animals in any quantity, but they can choose the common stock and cross with some of the improved cattle. It has been observed to have been the constant principle of the most intelligent breeders to procure such animals as were capable of weighing "the most in the most valuable joints." It must undoubtedly be an object of great importance to have those parts which are of but little value as small, and of as little weight as possible. The famous "Durham Ox" in England weighed at five years old upwards of three thousand pounds. And at eleven years of age, he weighed nearly that weight, although suffering from a painful illness that killed him: and this animal was out of a common cow by the Durham bull, Favourite. Mr. C. S. Clarkson, the most successful breeder of cattle, in his address to the Miami Valley Agricultural Society, stated that he had no hesitation in saying that the Durham Cattle was the finest breed in existence. That from five years practical experience, their aptness to fatten, their early maturity, large size, and superior beef, and milking qualities, not omitting their gentleness, beauty, and symmetry of form, had fully convinced him of this. The Durham Bullock at four years old is better than the common breed can be at any age, and this with the same food and treatment. As yet, however, the price of these animals is quite too great to justify the use of the full blood for the common purposes of beef and milk; but the crosses on the common stock of the country are found to be most advantageous; and every farmer should furnish himself with this breed. The cross produced from the stock of 1817 and the late importations, will in all probability be one of the *most improved breeds* in the country.—*Practical Farmer*

From the Albany Cultivator.

The most Profitable Breed.

HAVING thus given a hasty summary of the principal facts which tend to throw light on the main question before us, viz. "*what breed of cattle is most profitable*?" we proceed to state our convictions on the subject.

That the common cattle of the country do not possess the greatest attainable combination of excellencies, will readily be admitted. A selection of them present very desirable qualities for the dairy and the yoke; but in feeding properties, and especially in early maturity, they are deficient. A full blooded Durham bullock will go profitably to the butcher, at least two years earlier than the American, a decisive consideration to the grazier: and although the former is the greater consumer, the extra food required by him, will weigh but little against the two or even one year's additional keep of the latter.

But notwithstanding all that may be said for or against them, it is to the *best cross* with selected animals of the common race, feasibility and expense being taken into consideration, that the common American farmer must look for the most profitable breed of cattle. In this proposition we wish to be distinctly understood. We do not intend to assert that the produce of any cross we might thus make, would surpass in value, breeds already in existence; but the entire substitution of a foreign variety for our own, presupposes an expenditure of time and funds utterly out of the question.

The question then is, with what breed is this ameliorating change to be effected? On a careful comparison of the characteristic merits and defects of our own cattle, with the corresponding ones of other varieties, we arrive unhesitatingly at the conclusion, that to the pure improved Durham, we must look for the basis of the desired improvement. A cross with the Devon or Hereford, would sacrifice milking properties: the dwarfish and ill-shaped Alderney, is not to be thought of: the Ayrshire or the Long Horn, possess no excellencies that the Durham does not possess in a greater degree: and the Holderness, and the Teeswater Short Horns, compared with the improved race, are as the crude ore to the manufactured and polished metal.

Experience has already proved, that the cross between the Durham and our common race, is a most judicious one, and examples are not wanting of it in our own county. A few years since, a bull, sired by Wye Comet, was introduced into Homer, and his progeny are remarkable for their size, beauty and milking properties. They are but few, as most of our people at that period, who gave a thought to the subject of the improvement of their cattle, and they were not numerous, preferred the cloddy buttocked Yorkshires! Yet, there is perhaps not one of the immediate descendants of this bull, that would not be readily selected out of a large herd of the best common cattle, for its superior beauty of form.

The first cross between choice native cows and the improved Short Horn, has generally resulted equally favorably: indeed, the very beauty of the produce, has tended to prevent further attempts at improvement, by encouraging farmers to breed directly from half and three-quarter bred bulls. They frequently lack little of the beauty of their sires, and their services are to be more cheaply procured. But the characteristics of a variety thus obtained, are not sufficiently stamped upon them in the first, second, or even third or fourth cross, to be perpetuated with any great degree of certainty in their offspring. In the language of the Rev. Henry Berry, "to breed from the produce of a cross *directly among themselves*, will lead to the results which have induced many persons, without due consideration, to believe conclusive against crossing; but to take one cross, and then return and adhere to one breed, will in the course of a few generations, be found to stamp a variety with sufficient certainty."

Repeated experiments have amply demonstrated, that interbreeding between the Durham and our common race, if conducted on the principles advocated by Mr. Berry, viz: by a constant resort

to the pure blooded bull, is attended with a decided and manifest improvement of the produce in every successive generation. The bull selected, should be small of his kind; fine in the bone; unusually full in the crops and bosom, and wide in the loin and haunch—points in which the common breed are defective. He should be chosen too, from a family of decidedly good milkers. If the bull is large of his kind, the produce are generally coarse, and marked with the defects which attend great disparity in the size of the sire and dam. The dam should be as good in the points indicated in the bull, as our means of selection admits of: short legged, compact, deep in the girth, and a plentiful and steady milker. We have already alluded to the change effected by the farmers of Ayrshire *on a poorer breed*, by a Short Horn cross; and there can be no good reason why the American farmer, with the same skill and perseverance, may not be equally successful. Indeed there are grade Durhams already among us, which there can be no doubt are equal or excel the Ayrshire in every desirable point.

The Durham, as we have before remarked, requires more feed than our small native cattle. This, his superior size would lead us to expect. But though a greater, he is a more promiscuous consumer, the coarsest quality of hay or straw being readily devoured by him. In England, straw, with a very small allowance of turneps, constitute his exclusive store keep in winter. But to bring this matter to its true test, will the Durham yield as great a return in flesh, fat, or milk, for the amount of food consumed, as any given breed? That he will, repeated experiment, as well as his daily advancing popularity, in a country where there are many varieties greatly excelling our own in aptitude to fatten, and at least equaling them in milking properties, fully attest. The amount of food required by him, therefore, forms no objection to the improved Short Horn, on good soils, either in his pure state, or as a cross with others.

The only question now to be considered is, will the recommended cross, supply us with working cattle? It is asserted on the best authority, that the pure blooded Durham ox will "work admirably;" and the reason assigned for his not being oftener used for that purpose in his native country, is, that his early maturity renders him too valuable at three, for the butcher, to be retained with profit until four or five, for the yoke. There can be little doubt, that united with our smaller, but vigorous and active race, a heavy and powerful variety of working cattle will be produced. Those especially fed on upland and less nutritious pastures, whose labor *ought* to compensate for their tardier maturity, with size, feeding properties, and docility, increased by the cross, will lose little, and probably nothing of the activity and hardihood of the common race. To what precise extent interbreeding should be carried, to produce the most valuable breed of working cattle, experience can alone determine.

HENRY S. RANDALL.

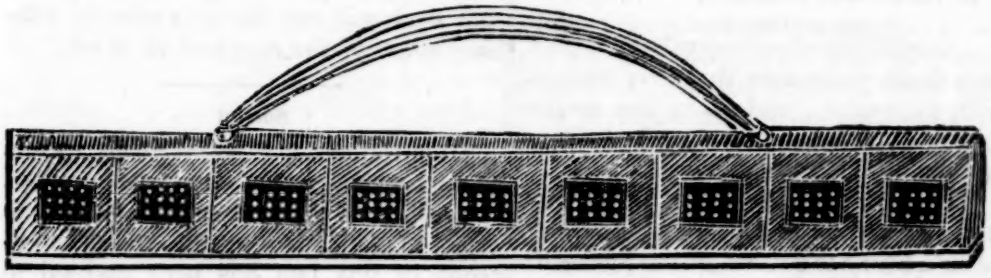
Cortlandville, January 21, 1840.

From the Franklin (Ky.) Farmer.

Gardening.

We wish farmers—all farmers—would pay more attention to this subject. It is most abominable to see farmers, possessing every substantial resource of comfort and independence, neglecting this important part of their agricultural operations. There are many—too many, who content themselves by cultivating a patch of cabbages and a row of potatoes for table vegetables. How can any husband, who loves his wife, and who feels the pride every husband and farmer should feel, be content with furnishing his table with no greater variety of vegetables? It is extremely mortifying to us to have to say anything in this spirit; but there are some who *deserve* to be talked to thus. There is not a farmer in the whole state of Kentucky who cannot have a first rate garden, stocked with all the fruits and vegetables which, from the beginning to the end of every year, would supply his table with the most grateful and wholesome varieties of food. Why

then, is it, that so many are destitute of even the most ordinary of the table vegetables? There is no answer to this question, which would not make *us* blush, and which *ought not* to make the *guilty culprits* blush yet much deeper. Besides the substantial comforts afforded from a well cultivated garden, and which are obtained at a small cost compared to their real value, there is no department of husbandry and agricultural labor which rewards the intelligent farmer with more useful knowledge. The garden is the true experimental school of the farmer. It is here that he makes those first essays in practice, which are afterwards extended to the fields. If a new production is recommended for cultivation, or a new process of producing an old one is suggested, it is in the garden that he can test the value of one and the philosophy of the other. In the absence of agricultural schools and experimental farms, every farmer, who is ambitious to excel —and every one should be so—must make his own experiments, with each new vegetable proposed, and try each new process of husbandry which promises useful results



Clover Box.

The above drawing and description of a clover box was given us by the Hon. Judge Peters, of Philadelphia. He says, "On a recent visit to the Eastern shore of Maryland, I saw there a box, which is in general use for sowing clover-seed; by which great economy is produced, and the seed is placed on the ground with entire certainty.

Fifteen acres were sown with one bushel of seed, and the clover was well set, and the plants in sufficient numbers —not a part of the field was passed over without its having been well seeded.

The box is exceedingly simple in its construction, and could be made at a very small expense. A drawing of it is given above.

It is ten feet, or eight feet in length, and about four inches in breadth, divided into partitions of six inches long. In the bottom of each partition is an opening of about three inches square, in which is inserted a piece of tin, or parchment, or stiff paper, perforated with a number of holes of a sufficient size for the clover seed to pass through. In each partition the seed is placed. To the box is fixed a strap, which is passed over the shoulders of the sower, and carrying the box before him, he walks over the field, agitating the box by his hand if it requires more movement than it receives by the walk. In this manner the seed is equally scattered over all the ground.

If thought necessary, a piece of wood may be hooked on the bottom of the box, to prevent the seed dropping out before the sowing commences. The box may be made of light cedar, and cut to weigh six or eight pounds without the seed.

October 24th.

Better Laugh than Cry.

So say we. There's no use in rubbing one's eyes and blubbering over all the ills that flesh is heir to. Red eyes, especially if caused by brandy, or its kindred, are scandalous looking affairs. The best way is "to stand up to the rack," and take the good things and the evil as they come along, without repining, always cheering yourself with that philosophical ejaculation, "better luck next time!"

Is dame fortune as shy as a weasel? Tell her to go her way, and laugh her in the face. The happiest fellow we ever saw slept upon a bank and had'nt a shilling in his pocket, nor even a coat to his back.

Do you find disappointment lurking in many a prize? Then throw it away and laugh at your own folly for so long pursuing it.

Does fame elude your grasp? Then laugh at the fools that are so often her favorites. She's of no consequence any how, and never buttered a piece of bread or furnished a man a clean dickey.

Is your heart broken by

"Some maiden fair
Of bright blue eyes and auburn hair?"

then thank your stars that you escaped with your neck; and make the welkin ring with a hearty laugh. It lightens the weight on one's heart amazingly.

Take our advice, under all circumstances to laugh dull care away! Don't be in a hurry to get out of the land—it's a very good world, considering the creatures who inhabit it, and is just about as full of fun as it can be. You never saw a man cut his throat with a broad grin on his face; it's a grand preventive of suicide. There's philosophy, and religion too, in laughing, it shows a clear conscience, and sincere gratitude for the good things of life, and elevates above the brute creation. So here goes for fun—and we'll put in for our share, while the ball is rolling.—*Goshen Democrat.*

From the Farmer's Cabinet.

Theory.

No man, however much he may repudiate theory, engages in any work without first having the theory of it established in his mind. Theory precedes practice as thought precedes action. One farmer spreads his manure a long time before he ploughs it in; another ploughs it under as it is spread, and another uses it as a top dressing, while some are particular as to the time of the moon, when dung is to be put on the soil. Each has his theory and acts agreeably to it, and his success is not dependent on his having *no theory* at all, but on his theory being in accordance with sound reason; for there is always a reason why one way of doing a thing is better than another. Some alledge that every thing that is printed about agriculture is mere theory, and therefore to be disregarded; those who entertain this opinion certainly maintain a very unsound *theory*, and the sooner they sift all the knowledge they possess and have gained by their own individual and unaided exertions, from what they have obtained by reading and conversation with others, the sooner they will ascertain the sum total of their *ignorance*, which it is expected will so alarm them that they will see the necessity of rubbing some of the roughest of it off.

Sound

Of all kinds, it is ascertained, travels at the rate of thirteen miles in a minute: the softest whisper travels as fast as the most tremendous thunder. The knowledge of this fact has been applied to the measurement of distances.

Suppose a ship in distress fires a gun, the light of which is seen on shore, or by another vessel, twenty seconds before the report is heard, it is known to be at the distance of twenty times one thousand one hundred and forty-two feet, or little more than four miles and a half.

Again, if I see a vivid flash of lightning, and in two seconds hear a tremendous clap of thunder, I know that the thunder cloud is not more than seven hundred and sixty yards distant, and should instantly retire from any exposed situation.

The Wife.

That woman deserves not a husband's generous love who will not greet him with smiles as he returns from the labors of the day; who will not try to chain him to his home by the sweet enchantment of a cheerful heart. There is not one in a thousand that is so unfeeling as to withstand such an influence, and break away from such a home.

Poultry.

THERE is many a good housewife that can roast or boil a chicken, turkey, or goose, to admiration, that does not understand determining the age of the fowls they are to cook, and hence serious mistakes sometimes occur; part of the chicken-pie, or one of the brace of roasted fowls being over-done, while the other is utterly unfit to be sent to the table.—They who undertake to cook a pullet with its maternal progenitor of the third remove, or spit a ten month's duck or goose by the side of their grandsires, will probably be unsuccessful in producing a dish to their satisfaction.

The breast bone of a fowl gives one of the surest indications of the age of the bird. If it is soft and bends or gives easily, the fowl is young; if it is hard and inflexible, whatever may be the quality of the bird in other respects, time will be required to cook it. Much may also be known by the appearance of the toes and feet—those of the young being usually perfect and flexible, while older ones rarely have their feet in that state. In young geese, the cavity under the wings is very tender, the web between the toes thin and partially transparent, and if the head of a pin is passed along the breast or sides, the skin will readily tear like fine paper under a knife. By attending to these points, disappointment may at times be avoided, as the time required for cooking in any manner, young and old poultry, is widely different.

To save Seeds.

ALL seeds keep better in their seed vessels, but this can rarely be done, on account of the great space occupied.—As soon, therefore, as the pods of cabages, turneps, radishes, &c., turn brown, and a part become dry, the stems should be cut and laid on a cloth or floor to dry, and afterwards thrashed out, and hung up in bags in some open airy place.—Lettuces should be pulled up with the roots, as soon as there is the least appearance of maturity, and hung up, and the plants will ripen all their seeds, nearly at the same time. If left in the garden to ripen, the earliest and best will be lost; in fact, except under very favorable circumstances, very few will be obtained, as every shower and every strong breeze will lessen the quantity, and scatter those which are mature over the whole garden. The same course should be pursued with leeks and onions. It is a prevalent opinion that the bush squash cannot be perpetuated among us, as such have a strong tendency to run, and will in one or two seasons become a vine.—This is a mistake, and originated, no doubt, in the manner of saving the seed. If the first squashes which appear be retained for seed there is no danger of the plant running the next season; but if these be used, and those which are borne at the extremities are preserved for this purpose, they will run, and moreover, will be later in bearing. To have early fruit of either the squash, cucumber or melon, the very first should be reserved. —*Southern Agriculturist.*

Hard Water.

THERE is nothing that gives more annoyance to the housewife in the management of her domestic affairs, than what is usually called hard water. This is water impregnated with the muriate or sulphate of lime, the acids of which unite with, and neutralize the alkali of the soap she uses, leaving the grease free to float like a dirty scum on the water, and rendering all attempts at clean washing, a failure. The best way to avoid this evil, is for the farmer to provide a good rain-water cistern; but where this has not been done, water may be rendered fit for washing in two ways—the first is, to "put a couple of quarts of wheat bran into a bag, which is placed in the water, while heating over the fire, and the water, when hot enough for use, will be found soft. This quantity of bran has been found sufficient for any common washing." The second method is to use soda, for the purpose of neutralizing the acid of the substances that occasion the hardness. "A few ounces of soda will soften a hogshead of the hardest water. It is greatly superior to either pot or pearl-ash; (or the common ash-ley which is sometimes used for the same purpose;) giving a delicate

whiteness to the linen, without the slightest injury; and it never, unless excess is used, in the least affects the hands." The expense of either method is trifling, compared with the trials of patience arising from unprepared water.

From the National Ægis.

Cultivation of the Plum.

Mr. Editor: Sir—I am induced to offer you some observations of mine on the cultivation of Plums. I have taken an interest in the cultivation of fruit for the last eight years, and now have several good kinds in a bearing state. The plum is one of our hardiest fruit trees. During our cold winters I lost pear, apricot, peach, and several of the Baldwin apple, by the severity of the cold, but not a single plum tree. Plum trees of almost all kinds are good bearers; they usually blossom full, and the fruit sets well, and it is certainly one of the most delicious fruits we have, when in perfection. The fine kinds are wholesome and salutary, and can be indulged in even to satiety, when fully ripe, without harm. They will grow well in rather a low loamy soil; if the soil is rich, they grow fast and come quick into bearing.

But the grand obstacle in the way of cultivating this fruit, is the depredations of a small insect of the beetle tribe, which commences its operations when the fruit is quite small, and continues them usually till the first of August. This beetle is called by horticulturists the curculio—is about one sixth of an inch long, has two small bunches or protuberances on its back, and a rostrum or beak, and on this two antennæ.

By this rostrum it makes a semilunar incision on the plum, into which it deposits an egg. The egg hatches, producing a worm, or larvæ, which burrows down into the heart of the fruit, eating it through two or three times from end to end. This kills the life of the plum, causing it to wither and fall prematurely: the worm then soon leaves the fruit and enters the ground, where it undergoes a transformation or metamorphosis, common to the insect tribe, and then comes up a new curculio, to deposit its eggs as before described. Its work is not confined to the plum, but extends to the cherry, peach, and apple, though it would seem to prefer the plum to other fruit, on account, probably, of the smoothness of the skin, and the greater ease in making the incision. It is remarkable how general its depredations are on the plum tree when unmolested; for when the tree is loaded with fruit, and large, scarcely a single plum will remain unpunctured, and consequently all will be lost to the cultivator. Some kinds of peach and apple which have a woolly or furry surface, are not attacked. Almost all the wind-fall apples (as they are called) are produced by this beetle, and upon examination will be found to contain the larvæ or worm from the egg of the curculio.

The plum tree is subject to a disease on the limbs, a kind of excrescence or warty appearance, which Dr. Harris says is caused by this same curculio, puncturing the tender bark and depositing her eggs under it. "The swellings, or warts, are diseases of the bark, caused by the punctures of the weevil, and the residence of the grubs. The sap vessels being wounded and irritated by the insects, throw out an increased quantity of fluid; this is re-absorbed by the bark, which is consequently swollen and thickened in substance; the overstretched cuticle bursts, and the swelling becomes irregular, granulated, and full of fissures."

Dr. Harris recommends cutting out and extirpating these excrescenses and burning them before the last of June. The wounds made in so doing should be treated with mortar used in grafting.

The character of the curculio is shy and timorous; so much so, it is seldom seen unless hunted after purposely. He is not often seen in motion on the tree, but occasionally in a small crevice or crack, or the axilla of a limb, and so much does he resemble an old blossom or a bud, or a small piece of bark, that he will commonly remain unnoticed. Should the observer extend his

thumb and finger to take him, ten to one if he don't elude him, falling as imperceptibly as a small shot would to the ground.

The habits of this insect are not well known, I still believe, to fruit growers. I have made frequent inquiry of them for a preventive measure. Some have told me the insect crawled up the tree, and most of them have never seen it to know it. It is well to remark, that it flies on the tree.

The following are some of the means of preserving fruit against the attacks of these insects.

First. All the premature fruit that falls to the ground with the worm in it, should be immediately gathered and burned. It will begin to fall as early as the 12th or 15th of June, and continue to, until the middle of August, if not ripe before. This course, well pursued, will destroy the next generation of them and save the next year's crop.

Second. Shaking the tree briskly, morning and night, and two or three times during the day, will very much discommode and interrupt them from pursuing their operations—for at each concussion of the tree the insects fall to the ground, and if they reascend, will soon become discouraged by this course of treatment.

Third. Let two or three hands take a sheet or sheets, and spread under the tree, and then shake and jar it, and they immediately fall, feigning themselves lifeless, and appearing like a shapeless lump, and by those who are unacquainted with them, would not be taken for an animal until they moved. All that fall on the sheet should be immediately crushed. This last mode of destroying them should be practiced twice a day while any are found. In the spring of 1837, I cooped a hen and chickens about an Imperial Gage, whose fruit was destroyed the preceding year, and about all the plums matured on this tree. It is probable that the beetles were destroyed by the brood, as they made their way to the surface of the soil. As this little animal is easily annoyed, trees standing before a store or shop, or any frequented place, usually more or less escape injury. I have known trees standing near a hog pen, mature their fruit year after year, while others, standing four rods distant, as surely failed.

Mr. Manning remarks in his Book of Fruits, that plums thrive best near the borders of the sea, and that the curculio is said to avoid the salt air.

If the foregoing remarks should prove of any advantage to horticulturists in the protection of fruit from injuries inflicted by this insect, or lead to minuter investigation into its nature and habits, I shall be well rewarded for this imperfect communication. JOEL BURNETT.

Southboro', June 19, 1839.

Prairie Fences.

THE following communication, taken from the N. E. Farmer, will suggest to some of our western agriculturists, a valuable method of enclosing, as well as *ornamenting*, their farms, that may be situated on the prairies not convenient to timber.—ED.

Mr. Stebbins's Statement

To Peter C. Brooks, William Prescott, E. H. Derby, Josiah Quincy, jr., and Elias Phinney, Esqrs., Committee of the Massachusetts Society for Promoting Agriculture:

GENTLEMEN—I embrace the privilege of informing you that in the year 1834, I transplanted from my nursery four thousand two hundred honey locust trees, raised from the seed, being two years old, and set them around the borders of a twelve acre lot, about one hundred and sixty rods, averaging about a half a foot apart; some portions of the lot adjoin heavy timber land, is partially shaded, and have grown but indifferently: other parts having a better exposure, have grown very well, from five to eight feet, and capable of being so interlocked, as to make a durable and valuable fence.

On a piece of dry sandy soil, situate between a portion of the honey locust hedge and the yellow locust grove, described in another paper, I had planted out some thousands of Large Leaf Canton layers, which flourished very well, except on the borders of the above mentioned hedge and grove: about one rod in width, on either side, the mulberry

trees were of small size, of four to six inches, while other parts out of the reach of the roots of the honey and yellow locust, the trees were from two to four feet, on the same quality of soil: but where the roots extended under adjoining grass ground, did not perceive any injury.

All of which is respectfully submitted by DANIEL STEBBINS.

At the request of Dr. Daniel Stebbins, we have examined and measured his honey locust hedge, on Rockey Hill, in Northampton, and find that more than fifty rods of said hedge are in a flourishing condition, and in our opinion will make a substantial hedge, the whole length of which is over one hundred and sixty rods. THEODORE WRIGHT,
WILLIAM W. COOK.

Northampton, Sept. 2d, 1839.

Joy and Sorrow.

As the most luxuriant plants thrive best with an equal mixture of sunshine and shade, showery and dry weather, and in a soil composed of sand as well as richer materials, mingled in due proportions together, so the human mind is a plant which thrives best with a just proportion of prosperity and adversity, joy and sorrow.

Glory.

Pliny gives the following character of true glory—"Doing what deserves to be written, and writing what deserves to be read; and rendering the world happy and better for having lived in it."

The editor of the Northampton Courier tells of a silken thread eighteen hundred feet in length, wound without breaking, from a single cocoon.

The Wheat Fly

Is an animal that has never attacked my grain. It has so happened that my neighbor's wheat and mine were in adjoining fields, separated only by a fence; that his wheat was nearly destroyed by the fly, and not one discovered in mine. The only solution I can give to it is as follows:

My wheat is *uniformly* sowed late, never until there has been a hard frost,—sufficiently so as to kill insects of that kind. I cause a strong solution of salt and water to be made, sufficiently so to bear an egg; and my wheat is soaked about twenty-fours hours in it, and then rolled in lime on the barn floor. When that rule has been followed, my crops have been about as good as my neighbors, when their wheat *was not affected* with the fly. Great care should be taken not to soak the wheat more than about twenty-four hours, and then rolled in lime; else the germinating quality of the wheat may be destroyed or injured.

A. DEY.

New-York, 23d July, 1839.

Singular deviation in the growth of the Grape.

We have received from a correspondent in Portsmouth, the following account of the same, accompanied with specimens of the fruit:

"I have sent you, as a curiosity, some purple grapes, which grew on a white sweetwater vine. I am certain of the fact, as I took the grapes from the vine myself. There is an Isabella standing near; but these grapes were twelve feet from any Isabella. You will perceive that part of them have the form of the Isabella, and some of them of the sweetwater. The color of one grape is mixed. The vines have stood where they now are for several years, but nothing of the kind has ever taken place before. The mixing of fruit in the grape is new to me. It is nothing unusual with the squashes, and it has taken place with the apples—an instance of the russet growing on a limb of the Baldwin. But in this case the limbs of the two trees interfered."

We tasted of the grapes, and some of them had a strong flavor of the Isabella. Have any of our correspondents ever known of such a singular anomaly? If so, we should be glad to hear of it.—*Amer. Gar. Mag.*

No!—is a useful word—be not afraid to use it when circumstances require its use.